What Can Physiology Tell Us About Stopover Site Habitat Quality for Migrating Western Sandpipers?

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Abstract

The ultimate expression of the quality of a site is in the condition of the individuals using it. In migratory birds, success of migration is linked to the rate of fat deposition at stopover sites. Therefore fattening rates can serve as an index for habitat quality of migratory stopover sites. Size-corrected body mass has been used as an index for body condition, but only provides information at a single point in time. Previous studies by our group have shown that plasma triglyceride concentrations can predict mass change in free-living birds and provide information on the physiological condition of birds. In this study, we demonstrate significant site differences in fattening rates in migrating Western Sandpipers *(Calidris mauri)* at stopover sites within the Georgia Basin/Puget Sound based on metabolite analysis. Stronger site effects were detected during northward than southward migration. There was within site consistency between seasons and years. There was no site effect in size-corrected body mass, i.e. metabolite data provide information not obtainable by mass data alone. There was a positive relationship between triglyceride levels and prey abundance. Future work will explore correlations with other underlying ecological factors that may explain the remaining variation in fattening rates.